

## Method for bonding polymeric articles

**Description of Technology:** The present invention relates to methods for bonding articles made of polymers, and specifically, fluoropolymers. In particular, the present invention relates to coating the surface of at least one article to be bonded with a polymer, and placing an interlayer comprising either a conductive or a magnetic material or a polymer, or both, between articles to bonded, and bringing the surfaces of the articles into contact with each other after the surfaces of the articles have been coated to bond the articles together.

## **Patent Listing:**

1. **US Patent No.** 5,762,741, Issued on June 9, 1998, "Method for bonding polymeric articles." <a href="http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=5,762,741.PN.&OS=PN/5,762,741&RS=PN/5,762,741</a>

Market Potential: Generally, known one-step methods produce inferior quality welds for a number of reasons. Primarily, the heat needed to bond the interlayer and the articles is applied from the outside of the articles through the use of heated plates. This method depends on the heat conducting through the articles to reach the interlayer, which flows and bonds the two articles together when the interlayer's melting point is reached. It is difficult to ascertain by this method that the correct welding conditions have been achieved, i.e., that the proper temperature was reached and that a satisfactory, uniform weld was produced. In many cases the interlayer degrades or bubbles, which can provide a free passage for process leakage. Therefore, in manufacturing environments, there is an obvious practical need to guarantee that the interlayer has fused into the surfaces of the articles in order to prevent leaks.

Accordingly, the present invention solves the problems of the prior art by providing methods of bonding polymeric articles which produce bonds which are superior to those produced by methods of the prior art. The present invention also solves the problems of the prior art by providing methods of bonding polymeric articles which produce bonds which are reliable, even in corrosive environments.

The present invention also solves the problems of the prior art by guaranteeing that the polymer used to bond the articles fuses into the surfaces of the articles in order to prevent leaks in the process in which the articles are used.

## **Benefits:**

- Bonds polymeric articles which produce bonds more superior than those of prior art.
- Bonds are reliable, even in corrosive environments.
- The polymer used to bond the articles fuses into the surface of the articles to prevent leaks.

## **Applications:**

Prevention of leaks in manufacturing products.